

**REMARKS/ ARGUMENTS**

Claims 1-52 and new claims 53-54 are pending in the application.

Reconsideration and a withdrawal of all the outstanding rejections and objections are hereby respectfully requested in view of the above amendments and the following remarks.

The Applicant has addressed the restriction requirement in its previous submissions. The Office Action has deemed the restriction requirement final.

New claims 53-54 have been added to round out the coverage for the Applicant's invention. No new matter has been introduced, and the claims are fully supported by the specification (see e.g., specification at p. 21, line 26 through p. 22 line 7, and the description of Fig. 1). For the reasons set forth herein, new claims 53-54 are patentable over the cited references.

**1. The §102 Rejection Over Hosten**

Claims 1-4, 8-18, 23-25, and 42-46 stand rejection under 35 USC 102(b) as being anticipated by Hosten (4,898,657). This rejection is respectfully but strenuously traversed and reconsideration and a withdrawal of the rejection is hereby respectfully requested.

The Office Action contends that Hosten discloses an electroplating apparatus which has work pieces being conducted through an electrolyte solution in a horizontal path, and has

Dated: June 9, 2009

Serial No.:10/526,149

cathodic contacting by contacting clamps. The Office Action further contends that the contact clamps of Hosten move with the work piece through the device (citing to Hosten's abstract). The Office Action further discusses Hosten as anticipating the Applicant's present invention because the Office Action considers that the Hosten device is shown having a work piece (Lp), where the current supply is designated as the power transmission and that cathode current is supplied. According to the Office Action, the contention is that the contact strips of Hosten are shown being joined together in one contacting frame to receive the work piece, and that this is shown in Figure 1 of Hosten where an upper and lower clamps (Kbo and Kbu) are set forth along with retaining rails (Hso and Hsu). Accordingly, the Office Action concludes that Hosten would anticipate the Applicant's present invention.

The Applicant's invention is not anticipated nor is it taught or suggested by Hosten. Hosten discloses a device for the electrolytic plating of metal to printed circuit boards comprising a conveyor for the printed circuit boards so that the printed circuit boards are transported on a horizontal path through the device while they are oriented horizontally. According to Hosten, the printed circuit boards contacted by means of contact clamps (Kk) comprising upper and lower clamp jaws (Kbo, Kbu) which clamp jaws are forced against one edge region of the printed circuit board by means of closing springs (Sf) that are coil springs arranged on dog pins (Ms). The clamp jaws (Kbo, Kbu) press against the upper or lower sides, respectively, of the printed circuit board in the edge region thereof. Cathodic current is transmitted through the contact clamps by means of contact springs (Kf) on which power pick ups (Sao, Sau) slide, the power pickups being applied to the upper or lower clamp jaws Kbo, Kbu, respectively.

First, Applicant's invention, as claimed, is distinguishable over Hosten. Claim 1 of Applicant's invention calls for:

Claim 1. (Currently amended) A device for electrolytically treating an at least superficially electrically conducting work piece (1) having substantially opposing side edges (24) ... contact strips (5) for electrically *contacting the work piece (1) at the substantially opposing side edges (24)*;

Hosten discloses clamp jaws Kbo, Kbh which contacts one edge, not both.

Second, it appears from the Office Action that the rejection has considered the clamp jaws to be the contact strips. Therefore, it would appear that, according to the Office Action, the Hosten clamp jaws have been considered to anticipate the Applicant's claimed contact strips of the present invention that are utilized for electrically contacting the printed circuit boards. A review of the Office Action reveals that the basis for the rejection is that Hosten's clamp jaws contact the printed circuit boards at opposing side edges and that two clamp jaws are joined together in one contacting frame. However, the Applicant's present invention is distinguishable over Hosten.

Applicant's invention provides contact strips which are designed to remain in the treatment tank (e.g., stationed within the tank), as opposed to Hosten which discloses clamp jaws held by the dog pins (Ms), where the dog pins (Ms) are longitudinally guided by channels (N) in the upper and lower retaining rails (Hso, Hsu). Therefore, upon a reading of Hosten, one of ordinary skill in the art would realize that the clamp jaws referred to in Hosten are themselves conveyed through the apparatus on a horizontal transport path as the printed circuit boards are being conveyed through the Hosten device. Applicant's invention is distinguishable over Hosten. To more particularly articulate the Applicant's invention, Applicant has amended claim 1 to recite that the contact strips

being stationed within the treatment tank. Applicant has further distinguished the present invention over Hosten. Hosten discloses an apparatus for horizontally conveying the printed circuit boards therethrough and for treating the printed circuit boards during their passage through the apparatus. One of ordinary skill in the art therefore would not have looked to modify the Hosten apparatus to provide the contact strips of Applicant's present invention that are designed and arranged to remain stationed within the treatment tank. Rather, the Hosten apparatus would no longer function for its intended purpose were Hosten to be modified as proposed and described in the Office Action. Hosten's apparatus would therefore no longer be a conveyorized apparatus if what the Office Action considers to be the "contact strip" of Hosten (namely, Hosten's clamp jaws), were to remain stationed within the treatment tank. As the Hosten apparatus would no longer be a conveyorized apparatus, modifying the Hosten apparatus would result in providing something which is completely different to the function and features that Hosten discloses.

Accordingly, the Hosten disclosures actually teaches away from the Applicant's present invention as Applicant provides contact strips which are designed to remain in a location, namely, remain stationed within the treatment tank, as opposed to being conveyed along with the printed circuit board through the device as in the Hosten device (See Hosten abstract, col. 2 lines 14-16, and col. 4, lines 4-9).

For the above reasons, Applicant's invention is not obvious nor is it taught or suggested by Hosten. Accordingly, the rejection of the claims with respect to Hosten should be withdrawn. Reconsideration is respectfully requested in view of the above remarks.

**2. The 102(b) Rejection Over Geissler**

Claims 1-4, 8-18, 42-46 stand rejected under 35 U.S.C. 102(b) as being anticipated by Geissler et al. (6,238,529). This rejection is respectfully but strenuously traversed and reconsideration and a withdrawal of the rejection are hereby respectfully requested.

The Office Action considers Geissler et al. to disclose an apparatus for electrolytically treating printed circuit boards 3, wherein counterelectrodes, 1, 2 are disposed opposite the plane of conveyance and substantially parallel thereto on at least one side so that the electrolytic chambers 4, 5 are formed between counterelectrodes which are situated opposite one another or between the counterelectrodes and the plane of conveyance, the counterelectrodes forming respective substantially continuous electrode faces. The Office Action also contends that Geissler discloses guide elements 7, 8 for the printed circuit boards which are disposed in the electrolytic chamber, and that contact elements 11 are provided for the electrical contacting of the printed circuit boards. In addition, the Office Action refers to electrolyte spraying arrangements and that the printed circuit boards or foils can be guided in a horizontal or vertical orientation. The Office Action considers that Geissler discloses anodes used as counterelectrodes and that Geissler discloses contact strips that when joined together in one contacting frame, hold the edges of the work piece as the work piece is conveyed through the electrolytic cell so that the work piece can be electroplated. The Office Action rejection contends that Geissler et al. further shows that the contact strips are connected to a current supply.

Applicant's invention is not anticipated by nor is it obvious over Geissler. Geissler et al. discloses a device for the electrolytic plating of metal to printed circuit

Dated: June 9, 2009

Serial No.:10/526,149

boards comprising a conveyor for the printed circuit boards so that the boards are transported on a horizontal path through the device while they are oriented horizontally (or vertically). According to Geissler et al., the printed circuit boards are contacted by means of contacting clips 11 (or roller contacts 12). The contacting clips 11 are forced against the edge regions of the printed circuit board and press against the upper or lower sides, respectively, of the printed circuit board in the edge region thereof. Electrode current is transmitted to the contacting clips.

Applicant's invention is not disclosed by Geissler et al. First, for the same reasons as set forth above distinguishing the Applicant's present invention over Hosten, the Geissler contacting clips do not anticipate or teach or suggest the Applicant's present invention. The contacting clips referred to in the Office Action as being disclosed by Geissler do not disclose Applicant's contact strips for contacting the printed circuit boards at opposite side edges. This feature is claimed by Applicant. Applicant's claim 1 recites the features which distinguish the present invention over Geissler et al.:

Claim 1. (Currently amended) A device for electrolytically treating an at least superficially electrically conducting work piece (1) having substantially opposing side edges (24)... contact strips (5) for electrically *contacting the work piece (1) at the substantially opposing side edges (24)*;

In addition, Geissler further fails to disclose or suggest the feature of Applicant's claim 1 which recites that the contact strips are designed and arranged to remain stationed within the treatment tank. Contrary to the Applicant's present invention as claimed, the contacting clips of Geissler et al. are conveyed through the Geissler et al. apparatus.

The electrical connection between the clips 11, which travel jointly with the item to be treated 3, and the bath current source is provided via sliding contacts, which are not illustrated in the

Figures. Also, the linearly driven *contacting clips 11 assume the function of conveyance for the printed circuit boards or conductor foils.*

(Geissler et al., col. 6, lines 53-58)

Therefore, even if the Office Action attempts to equate the contacting clips of Geissler to the Applicant's contact strips (which they are not), the rejection must fail for yet additional reasons. The Geissler et al. contacting clips do not remain stationed within the treatment tank, but rather, are moved along with the printed circuit boards.

Similar to the distinguishing features of the present invention and the reasons supporting the patentability of Applicant's invention over Hosten, the present invention should also be patentable over Geissler et al. Geissler et al. discloses an apparatus for horizontally conveying the printed circuit boards therethrough and treating the same during the passage of the boards through the apparatus. Accordingly, one in ordinary skill in the art would not have been led to modify the Geissler et al. apparatus to have its contact strips being designed and arranged to remain stationed within the treatment tank. If this were to be done, the apparatus of Geissler et al. would no longer be a conveyORIZED apparatus, that is, if the Applicant's feature of having contact strips (what the Office Action considers to be the Geissler contacting clips) remain stationed within the treatment tank as opposed to being conveyORIZED and moved along with the printed circuit boards. Therefore, the Geissler et al. apparatus would no longer be a conveyORIZED apparatus but rather would be something else. Accordingly, modifying Geissler et al. would be contrary to what the disclosure, purpose and function of Geissler recite. Accordingly, the proposed modification to Geissler et al. would actually teach away from Applicant's present invention.

For these reasons, reconsideration and a withdrawal of the rejection is requested.

**3. The §102 Rejection Over Blasing et al.**

Claims 1-6, 8-25 and 42-46 stand rejected under 35 U.S.C. 102(b) as being anticipated by Blasing et al. (4,776,939). This rejection is respectfully but strenuously traversed and reconsideration and a withdrawal of the rejection is respectfully requested.

The Office Action contends that Blasing discloses a device for electroplating electric circuit boards and includes an electroplating bath and a plurality of transporting devices which hold objects to be treated when they are conveyed through the plating bath. The Office Action considers Blasing et al. to disclose transporting devices that are pairs of clamping yokes arranged on a common endless rotating belt and positionable from a clamping position in which they engage the object being treated and a release position in which they release the object. (Citing to Blasing's abstract) The Office Action further relies on Blasing for its alleged disclosure of transporting devices that may be clamps which releasably engage the edges of the circuit board over the transport path in the plating chamber, and further contends that each clamp may include two yokes biased by springs supported therebetween so that the springs exert pressure on the yokes and a clamping force to place them in a clamping position in which they cease an edge of the circuit board being treated. The Office Action relies on Blasing et al.'s disclosure of a device for the electrolytic plating of metal to printed circuit boards comprising a conveyor for the printed circuit boards so that boards are transported on a horizontal path through the device while they are held horizontally. The printed circuit boards are contacted by means of clamps, each comprising two yokes 17, 18 and contacting lower



ends 21, 22 are forced against the edge region of the printed circuit board. The contacting lower ends press against the upper or lower sides, respectively, of the printed circuit board in the edge region thereof. Electric cathode current is transmitted to the clamps, yokes and contacting lower ends.

First, for the same reasons as Applicant has set forth above the Applicant's present invention is not disclosed, taught or suggested by Blasing et al. In addition, there are other reasons why Blasing et al. fails to disclose or suggest the Applicant's presently claimed invention. The yokes and contacting lower ends of the Blasing et al. device is not a disclosure or suggestion of the contact strips for electrically contacting the printed circuit boards as is claimed by the Applicant. The Blasing et al. yokes and contacting lower ends thereof do not disclose or suggest the Applicant's claimed invention including the Applicant's claimed feature of the printed circuit boards being contacted at opposing side edges thereof as set forth in claim 1 (see above).

Second, in addition, Blasing et al. does not disclose the additional feature of the contacting frame being designed and arranged to remain stationed within the treatment tank. Contrary to the Applicant's presently claimed invention, the yokes and contacting lower ends of Blasing et al. are conveyed through the Blasing et al. apparatus. Unlike the Applicant's presently claimed invention, the yokes in contacting lower ends do not remain stationed within the treatment tank. Applicant's claims, as amended and presented herein, more particularly distinguish the present invention, and the invention is not taught, suggested or disclosed by the cited art, including Blasing et al.

Blasing et al. discloses an apparatus which horizontally conveys the printed circuit boards therethrough and treats the boards during their passage through the Blasing

Dated: June 9, 2009

Serial No.: 10/526,149

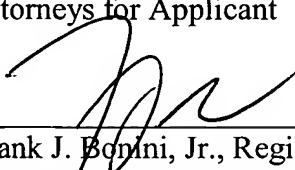
et al. apparatus. Therefore, one of ordinary skill in the art would not have looked to modify the apparatus of Blasing et al. to have contact strips being designed and arranged to remain stationed within the treatment tank. Blasing et al. apparatus would no longer be a conveyorized apparatus if the Applicant's claimed feature of having the contact strips (here what the Office Action considers to be Blasing's yokes and contacting lower ends thereof) remain stationed within the treatment tank as opposed to being conveyed or conveyorized through the tank. Blasing actually teaches away from the Applicant's present invention. For the reasons set forth herein the Blasing et al. reference does not disclose or suggest the Applicant's present invention.

For the reasons set forth herein, Applicant hereby respectfully requests reconsideration and a withdrawal of all outstanding objections and rejections in the case.

If an extension of time is needed the Commissioner is authorized to consider this a request for the appropriate petition for extension of time.

The Commissioner is authorized to charge any additional fees which may be required to the Patent Office Deposit Account No. 05-0208.

Respectfully submitted,  
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